

Application No. 09/913,448
Filed: August 14, 2001
TC Art Unit: 1774
Confirmation No.: 9630

AMENDMENT TO THE CLAIMS

1-3. (Cancelled)

4. (Previously Presented) A process according to claim 11, wherein the poly(carboxylic) acid and poly(carboxylic) acid anhydride are selected from the group consisting of saturated and unsaturated acyclic poly(carboxylic) acids, saturated and unsaturated cyclic poly(carboxylic) acids, aromatic poly(carboxylic) acids, hydroxy poly(carboxylic) acids, citric acid, poly(acrylic) acid, poly(methacrylic) acid, 1,2,3,4-butanetetracarboxylic acid, maleic acid, citraconic acid, itaconic acid, 1,2,3-propane-tricarboxylic acid, aconitic acid, all-cis-1,2,3,4-cyclopentanetetracarboxylic acid, mellitic acid, oxydisuccinic acid, and thiодisuccinic acid.

5. (Currently Amended) A process according to claim 11, wherein the catalyst is selected from the group consisting of dihydrogen phosphates, hydrogen phosphates, phosphates, hypophosphites, alkali metal phosphites, alkali metal salts of polyphosphoric acids, carbonates, bicarbonates, acetates, borates, alkali metal hydroxides, aliphatic amines and ammonia, ~~preferably selected from sodium hydrogen phosphate, sodium dihydrogen phosphate and sodium hypophosphate.~~

6. (Previously Presented) A process according to claim 11, wherein the cyclodextrin is selected from the group consisting of α-

Application No. 09/913,448
 Filed: August 14, 2001
 TC Art Unit: 1774
 Confirmation No.: 9630

cyclodextrin, β -cyclodextrin and γ -cyclodextrin and wherein the cyclodextrin derivatives are selected from hydroxypropyl, methyl or acetyl derivatives of α -cyclodextrin, β -cyclodextrin and γ -cyclodextrin and inclusion complexes formed from said cyclodextrins or said cyclodextrin derivatives.

7. (Currently Amended) A fiber having (a) hydroxide or (b) amine or (c) both hydroxide and amine functional groups, the fiber being bonded, via an ester or amide bond, to at least one molecule to form a structure comprising the repetition of a unit with general formula:



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or



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~~where $2 \leq y < x-2$, $x \geq 3$ and~~

where $x \geq 3$, $y \geq 2$ and $x-y \geq 1$ and

n is 1 or more, and in which:

[\text{Cell}] represents the macromolecular chain of a natural or artificial cellulose fiber;

Application No. 09/913,448
Filed: August 14, 2001
TC Art Unit: 1774
Confirmation No.: 9630

[Kex] represents the macromolecular chain of a natural or artificial protein fiber;

[COOH]_{x-y}

|

[Ac]

represents the molecular chain of a poly(carboxylic) acid

[COOH]_{x-y}

|

[Ac]

where at least two carboxylic acid functions (COOH)_y have undergone esterification or esterification and amidation respectively and which carries at least one carboxylic acid function (COOH)_{x-y} that has not undergone an esterification or amidation reaction; and

[CD] represents the molecular structure of α -cyclodextrin, β -cyclodextrin or γ -cyclodextrin derivative.

8. (Currently Amended) A fiber or fiber-based material, wherein said fiber or fiber-based material is coated with a cross-linked copolymer composed of cyclodextrin(s) and/or cyclodextrin derivative(s) and at least one poly(carboxylic) acid wherein the structure comprises the repetition of a unit with general formula:

[[CD] -O-CO- [Ac] -CO-O]_n

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-4-

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Application No. 09/913,448
Filed: August 14, 2001
TC Art Unit: 1774
Confirmation No.: 9630

(COOH)_{x-y}

~~where 2 < y < x-2; x ≥ 3 and~~

where x ≥ 3, y ≥ 2 and x-y ≥ 1 and

n is 1 or more, and in which:

[Ac] -

|

(COOH)_{x-y}

represents the molecular chain of a poly(carboxylic) acid

[Ac]

|

(COOH)_x

where at least two carboxylic acid functions (COOH)_y have undergone esterification and which carries at least one carboxylic acid function (COOH)_{x-y} that has not undergone an esterification reaction; and

- [CD] represents the molecular structure of α-cyclodextrin, β-cyclodextrin, γ-cyclodextrin, a cyclodextrin derivative, preferably a hydroxypropyl, methyl or acetyl α-cyclodextrin, β-cyclodextrin or γ-cyclodextrin derivative, or an inclusion complex of said cyclodextrins or said cyclodextrin derivatives.

Application No. 09/913,448
Filed: August 14, 2001
TC Art Unit: 1774
Confirmation No.: 9630

9. (Currently Amended) A fiber or fiber-based material according to claim 7, wherein the poly(carboxylic) acid is selected from saturated and unsaturated acyclic poly(carboxylic) acids, saturated and unsaturated cyclic poly(carboxylic) acids, aromatic poly(carboxylic) acids, hydroxy poly(carboxylic) acids, ~~preferably selected from citric acid, poly(acrylic) acid, poly(methacrylic) acid, 1,2,3,4-butane-tetracarboxylic acid, 1,2,3-propane-tricarboxylic acid, aconitic acid, all-cis-1,2,3,4-cyclopentanetetracarboxylic acid, mellitic acid, oxydisuccinic acid, and thioldisuccinic acid.~~

10. (Original) A fiber or fiber-based material according to claim 7, containing an insecticide or repellent agent forming a complex with molecules of cyclodextrin(s) and/or cyclodextrin derivative(s).

11. (Previously Presented) A process for treating a fiber consisting of:

- a. impregnating said fiber with an aqueous solution of a mixture to form an impregnated fiber, said mixture comprising
 1. one or more materials from the group consisting of cyclodextrins, cyclodextrin derivatives, inclusion complexes of cyclodextrins, and inclusion complexes of cyclodextrin derivatives, and
 2. one or more materials selected from the group consisting of poly(carboxylic) acids and poly(carboxylic) acid anhydrides;
- b. drying said impregnated fiber at a temperature in the range of 40°C to 150°C to obtain a treated fiber;

Application No. 09/913,448
Filed: August 14, 2001
TC Art Unit: 1774
Confirmation No.: 9630

- c. heating said treated fiber to a temperature between 150-220C.;
- d. washing said treated fiber with water; and
- e. drying said treated fiber.

12. (Previously Presented) The process of claim 11 wherein said fiber has been formed into a material selected from the group consisting of yarn, woven textile material, knitted textile material, non-woven textile material, paper, leather and wood fiber-based material.

13. (Currently Amended) The process of claim 11 wherein said solid mixture further comprises a catalyst.

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Currently Amended) The process of claim 1611 wherein said treated material is dried at a temperature between 90C and 110C.

18. (Previously Presented) The fiber of claim 7, wherein [CD] is selected from the group consisting of

- (a) a hydroxypropyl, methyl or acetyl derivative of α -cyclodextrin,

Application No. 09/913,448
Filed: August 14, 2001
TC Art Unit: 1774
Confirmation No.: 9630

- (b) a hydroxypropyl, methyl or acetyl derivative of β -cyclodextrin,
- (c) a hydroxypropyl, methyl or acetyl derivative of γ -cyclodextrin,
- (d) an inclusion complex of said cyclodextrins and
- (e) an inclusion complex of said cyclodextrin derivatives.

19. (Previously Presented) The fiber of claim 8, wherein [CD] is selected from the group consisting of

- (a) a hydroxypropyl, methyl or acetyl derivative of α -cyclodextrin,
- (b) a hydroxypropyl, methyl or acetyl derivative of β -cyclodextrin,
- (c) a hydroxypropyl, methyl or acetyl derivative of γ -cyclodextrin,
- (d) an inclusion complex of said cyclodextrins and
- (e) an inclusion complex of said cyclodextrin derivatives.

20. (Cancelled)

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